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EXAMINER	
ROE, CLAIRE L	

ART UNIT	PAPER NUMBER
1727	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/582,269	KOBUCHI ET AL.	
	Examiner	Art Unit	
	CLAIRE L. ROE	1727	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 January 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-4,6-11,33 and 34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-4,6-11,33 and 34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 June 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This office action is in response to the amendment filed on January 26, 2011. Claims 2-4, 6-11, and 33-34 are pending and are rejected for reasons of record. Claims 1, 5, & 12-32 are cancelled. Claims 2, 6-8, & 11 have been amended. Claims 33-34 are new.

2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action issued on October 26, 2010.

Claim Rejections - 35 USC § 112

3. Claims 2-4 and 6-11 are still rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 still contains the limitation "the high conductive layer is provided with the channel" (line 12) which is indefinite because it is unclear whether the conductive layer is formed within the channel (as shown in Figure 6) or between the channels (as shown in Figure 8 for example). For examination purposes, the claim is still interpreted to mean that the conductive layer is formed between fuel gas channels or between oxidation gas channels (as shown in Figure 8 for example).

Claim 2 now contains the limitations "the sealing section is composed of the metal sheet and the resin layer... the metal sheet having an outer periphery bent in one

of a U shape and a V shape, and provided with a sealing projection..." (lines 13-16) and "the sealing projection has a U-shaped or V-shaped sectional profile..." (line 20) which are indefinite because it is unclear exactly how the outer periphery bent in a U-Shape or V-shape and the sealing projection having a U-shape or V-shaped sectional profile physically relate to each other. The way claim 2 is currently worded, it is unclear if the outer periphery bent in one of a U shape and a V shape is the same as the sealing projection having a U-shape or V-shaped sectional profile, or if they are two separate portions of the metal sheet. For Examination purposes, these limitations are interpreted as meaning to state that the metal sheet has an outer periphery bent in a U-shape thus providing a region corresponding to the sealing section with a sealing projection.

Claim Rejections - 35 USC § 103

4. Claims 2 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reeder (US 6,040,076) in view of Yamamoto et al. (JP 2001-093539).

With regard to claims 2 and 33, Reeder teaches a fuel cell separator (10, col. 4, lines 23-28; Fig. 2) which is interposed between adjacent ones of a plurality of electrolyte assemblies (20 & 21 & 22 & 23 & 24, col. 4, lines 29-40; Fig. 2), each constructed of an electrolyte layer containing an electrolyte medium (22, col. 4, lines 29-40; Fig. 2) sandwiched between two catalytic electrodes (20 & 21, col. 4, lines 29-40; Fig. 2), wherein said catalytic electrodes are each disposed on the electrolyte layer in a

thickness-wise direction of the electrolyte layer (col. 4, lines 29-40; Fig. 2), the fuel cell separator comprising:

A separating section (col. 3, lines 61-67 & col. 4, lines 29-40; Fig. 2) for achieving separation between a fuel gas channel (25, col. 4, lines 29-40; Fig. 2) and an oxidizer gas channel (26, col. 4, lines 29-40; Fig. 2), where the separating section is composed of a metal sheet (col. 4, lines 19-22); and

A sealing section (15 & 17, col. 3, lines 61-67 & col. 4, lines 29-40; Fig. 2) disposed along an outer periphery of the separator (col. 3, lines 61-67 & col. 4, lines 29-40; Fig. 2) for preventing leakage of fuel gas and oxidizer gas (col. 3, lines 61-67 & col. 4, lines 29-40),

Wherein the sealing section is also composed of the metal sheet (col. 3, lines 61-67 & col. 4, lines 19-22 & 29-40; Figure 2) such that the separating section and the sealing section are integrally formed with each other (col. 3, lines 50-25 & 61-67 & col. 4, lines 18-21; Fig. 2), where the metal sheet has an outer periphery bent in a U-shape thus providing a region corresponding to the sealing section with a sealing projection (15, col. 3, lines 61-67 & col. 4, lines 29-40; Fig. 2) which is formed so as to extend in parallel with the surface of the electrolyte assembly (col. 3, lines 61-67 & col. 4, lines 29-40; Fig. 2), a vertex of which is brought into pressure-contact with the electrolyte assembly under a resilient force (col. 3, lines 61-67 & col. 4, lines 29-40; Fig. 2), and

Wherein a sectional profile of the sealing projection (15, col. 3, lines 61-67 & col. 4, lines 29-40; Fig. 2) perpendicular to a direction in which fuel gas and oxidizer gas flow is U-shaped (Fig. 2),

But fails to teach a resin layer provided within a fuel gas channel and/or oxidizer gas channel.

Yamamoto et al. teaches the concept of a fuel cell separator (44) made of metal (paragraph [0018]) having a resin layer / hydrophilic coat which can be a resin provided on its surface within a fuel gas channel and an oxidizer gas channel (45) (paragraphs [0014] & [0023]; Figure 4).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the concept of a metal fuel cell separator made of metal having a resin layer / hydrophilic coat which can be a resin provided on its surface within a fuel gas channel and an oxidizer gas channel of Yamamoto et al. to the separator of Reeder in order to improve drainage efficiency of water produced and to stabilize reactant gas (paragraphs [0020] & [0028]).

The Examiner notes that the product-by-limitations of claim 2 is not given patentable weight since the courts have held that patentability is based on a product itself, even if the prior art product is made by a different process (MPEP 2113). Moreover, a product-by-process limitation is held to be obvious if the product is similar to a prior art product (MPEP 2113). Claim 2 as written does not distinguish the product of the instant application from the product of the prior art.

The Examiner notes that for examination purposes, the limitation that the fuel cell is in its assembled condition (final product) was interpreted as the Applicant's invention.

5. Claims 3-4 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reeder (US 6,040,076) and Yamamoto et al. (JP 2001-093539), as applied to claim 2 above, and further in view of Kaneko et al. (US 6,383,678).

With regard to claims 3-4 and 8-11, modified Reeder fails to teach a high conductive layer / covering layer formed on the resin layer, where the high conductive layer / covering layer has a higher conductivity than the resin layer.

Kaneko et al. teaches the concept of coating a fuel cell separator (120, col. 5, lines 64-67; Figure 7) with a high conductive layer / covering layer / coating layer (125, col. 6, lines 1-8; Figure 7) where the high conductive layer / covering layer / coating layer is formed on the separator via an adhesive (128, col. 6, lines 1-8) made of epoxy or phenol (col. 6, lines 27-30), wherein the high conductive layer / covering layer / coating layer can be made of a porous film permeated by carbon powders (i.e. a vehicle for forming the rubber/resin and an electrically conductive filler that is carbon) (col. 6, lines 23-27).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the concept of coating a fuel cell separator with a high conductive layer / covering layer / coating layer where the high conductive layer / covering layer / coating layer is formed on the separator via an adhesive made of epoxy or phenol, wherein the high conductive layer / covering layer / coating layer can be made of a porous film permeated by carbon powders (i.e. a vehicle for forming the rubber/resin and an electrically conductive filler that is carbon) of Kaneko et al. to the fuel cell separator of

modified Reeder in order to create a separator having high conductivity and rust/corrosion resistance and which allows the fuel cell to supply a higher voltage in the initial stage and maintain a substantially constant voltage after a considerable long elapsed time (col. 6, lines 23-25 & 56-65; Figure 5).

While modified Reeder fails to specifically state that the high conductive layer / covering layer / coating layer has a higher conductivity than the resin layer, one of ordinary skill in the art would understand that the high conductive layer / covering layer / coating layer must have a higher conductivity than the resin layer due to the layer compositions.

6. Claims 6-7 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reeder (US 6,040,076) in view of Yamamoto et al. (JP 2001-093539) and Kaneko et al. (US 6,383,678).

With regard to claims 6 and 34, Reeder teaches a fuel cell separator (10, col. 4, lines 23-28; Fig. 2) which is interposed between adjacent ones of a plurality of electrolyte assemblies (20 & 21 & 22 & 23 & 24, col. 4, lines 29-40; Fig. 2), each constructed of an electrolyte layer containing an electrolyte medium (22, col. 4, lines 29-40; Fig. 2) sandwiched between two catalytic electrodes (20 & 21, col. 4, lines 29-40; Fig. 2), wherein said catalytic electrodes are each disposed on the electrolyte layer in a thickness-wise direction of the electrolyte layer (col. 4, lines 29-40; Fig. 2), the fuel cell separator comprising:

A separating section (col. 3, lines 61-67 & col. 4, lines 29-40; Fig. 2) for achieving separation between a fuel gas channel (25, col. 4, lines 29-40; Fig. 2) and an oxidizer gas channel (26, col. 4, lines 29-40; Fig. 2), where the separating section is composed of a metal sheet serving as a core member (col. 4, lines 19-22); and

A sealing section (15 & 17, col. 3, lines 61-67 & col. 4, lines 29-40; Fig. 2) disposed along an outer periphery of the separator (col. 3, lines 61-67 & col. 4, lines 29-40; Fig. 2) for preventing leakage of fuel gas and oxidizer gas (col. 3, lines 61-67 & col. 4, lines 29-40),

Wherein the sealing section is also composed of the metal sheet (col. 3, lines 61-67 & col. 4, lines 19-22 & 29-40; Figure 2) such that the separating section and the sealing section are integrally formed with each other (col. 3, lines 50-25 & 61-67 & col. 4, lines 18-21; Fig. 2), where the metal sheet has an outer periphery bent in a U-shape thus providing a region corresponding to the sealing section with a sealing projection (15, col. 3, lines 61-67 & col. 4, lines 29-40; Fig. 2) which is formed so as to extend in parallel with the surface of the electrolyte assembly (col. 3, lines 61-67 & col. 4, lines 29-40; Fig. 2), a vertex of which is brought into pressure-contact with the electrolyte assembly under a resilient force (col. 3, lines 61-67 & col. 4, lines 29-40; Fig. 2), and

Wherein a sectional profile of the sealing projection (15, col. 3, lines 61-67 & col. 4, lines 29-40; Fig. 2) perpendicular to a direction in which fuel gas and oxidizer gas flow is U-shaped (Fig. 2),

But fails to teach a resin layer provided within a fuel gas channel and/or oxidizer gas channel or teach a high conductive layer / covering layer formed on the resin layer,

where the high conductive layer / covering layer has a higher conductivity than the resin layer.

Yamamoto et al. teaches the concept of a fuel cell separator (44) made of metal (paragraph [0018]) having a resin layer / hydrophilic coat which can be a resin provided on its surface within a fuel gas channel and an oxidizer gas channel (45) (paragraphs [0014] & [0023]; Figure 4).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the concept of a metal fuel cell separator made of metal having a resin layer / hydrophilic coat which can be a resin provided on its surface within a fuel gas channel and an oxidizer gas channel of Yamamoto et al. to the separator of Reeder in order to improve drainage efficiency of water produced and to stabilize reactant gas (paragraphs [0020] & [0028])..

Modified Reeder fails to teach a high conductive layer / covering layer formed on the resin layer, where the high conductive layer / covering layer has a higher conductivity than the resin layer.

Kaneko et al. teaches the concept of coating a fuel cell separator (120, col. 5, lines 64-67; Figure 7) with a high conductive layer / covering layer / coating layer (125, col. 6, lines 1-8; Figure 7) where the high conductive layer / covering layer / coating layer is formed on the separator via an adhesive (128, col. 6, lines 1-8) made of epoxy or phenol (col. 6, lines 27-30), wherein the high conductive layer / covering layer / coating layer can be made of a porous film permeated by carbon powders (i.e. a vehicle

for forming the rubber/resin and an electrically conductive filler that is carbon) (col. 6, lines 23-27).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the concept of coating a fuel cell separator with a high conductive layer / covering layer / coating layer where the high conductive layer / covering layer / coating layer is formed on the separator via an adhesive made of epoxy or phenol, wherein the high conductive layer / covering layer / coating layer can be made of a porous film permeated by carbon powders (i.e. a vehicle for forming the rubber/resin and an electrically conductive filler that is carbon) of Kaneko et al. to the fuel cell separator of modified Reeder in order to create a separator having high conductivity and rust/corrosion resistance and which allows the fuel cell to supply a higher voltage in the initial stage and maintain a substantially constant voltage after a considerable long elapsed time (col. 6, lines 23-25 & 56-65; Figure 5).

While modified Reeder fails to specifically state that the high conductive layer / covering layer / coating layer has a higher conductivity than the resin layer, one of ordinary skill in the art would understand that the high conductive layer / covering layer / coating layer must have a higher conductivity than the resin layer due to the layer compositions.

The Examiner notes that the product-by-limitations of claim 6 is not given patentable weight since the courts have held that patentability is based on a product itself, even if the prior art product is made by a different process (MPEP 2113). Moreover, a product-by-process limitation is held to be obvious if the product is similar

to a prior art product (MPEP 2113). Claim 6 as written does not distinguish the product of the instant application from the product of the prior art.

The Examiner notes that for examination purposes, the limitation that the fuel cell is in its assembled condition (final product) was interpreted as the Applicant's invention.

With regard to claim 7, modified Reeder fails to teach that the high conductive layer / covering layer / coating layer is thinner than the resin layer.

While modified Reeder fails to teach that the high conductive layer / covering layer / coating layer is thinner than the resin layer, one of ordinary skill in the art would understand that it is cost effective to make the high conductive layer / covering layer / coating layer thinner than the resin layer. Furthermore, it would have been obvious to one of ordinary skill in the art to make the conductive layer to be as thin as possible in order to allow electrons to pass through the layer with as little resistance as possible.

The Examiner notes that the product-by-limitations of claim 7 is not given patentable weight since the courts have held that patentability is based on a product itself, even if the prior art product is made by a different process (MPEP 2113). Moreover, a product-by-process limitation is held to be obvious if the product is similar to a prior art product (MPEP 2113). Claim 7 as written does not distinguish the product of the instant application from the product of the prior art.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 2-3 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 2, 5-6, 9, 11, & 20 of copending Application No. 10/579,067. Although the conflicting claims are not identical, they are not patentably distinct from each other because both claim the following:

A fuel cell separator which is interposed between a plurality of electrolyte assemblies each constructed of an electrolyte layer containing an electrolyte medium and a catalytic electrode disposed on a surface in a thickness-wise direction of the electrolyte layer (instant application; claim 2; Application 10/579,067: claim 2), the separator comprising:

A separating section for achieving separation between a fuel gas channel and an oxidizer gas channel (instant application; claim 2; Application 10/579,067: claim 2); and

A sealing section disposed along an outer periphery of the separator for preventing leakage of fuel gas and oxidizer gas (instant application; claim 2; Application 10/579,067: claim 2),

Wherein the separating section is formed of a metal sheet serving as a core member and a resin layer / synthetic resin-made coating layer formed on a surface of the flat metal sheet (instant application; claim 2; Application 10/579,067: claims 2 & 11), where the resin layer is provided with the fuel gas channels or oxidizer gas channels (instant application; claim 2; Application 10/579,067: claims 2 & 5), and

Wherein on a surface of the resin layer is formed a high conductive layer having higher electrical conductivity than electrical conductivity of the resin layer (instant application; claims 2 & 3; Application 10/579,067: claims 2, 11, 12, & 20)

Wherein the sealing section is provided with a U-shaped or V-shaped sealing projection extending in parallel with a surface of the electrolyte assembly on which a catalytic electrode is formed, the sealing section having a vertex which is constituted so as to be brought into pressure-contact with the electrode assembly under a resilient force (instant application; claim 2; Application 10/579,067: claims 2 & 9), and

Where the sealing projection has a U-shaped or V-shaped sectional profile when viewed from a direction perpendicular to a direction in which the fuel gas and the oxidizer gas flow (instant application; claim 2; Application 10/579,067: claim 2).

While Application 10/579,067 fails to claim that the sealing section is composed of a metal sheet and a resin layer formed on a surface of the metal sheet, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the sealing section of the separator be made of the same materials / configuration as the separation section of the separator in order to make manufacturing the separator easy and efficient.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

Claim Rejections - 35 USC § 112

9. Applicant's arguments with regard to the rejections of claims 2-4 and 6-11, filed on January 26, 2011, have been fully considered and the Examiner's rejections are withdrawn due to the Applicant's amendments and arguments.

However, claims 2-4 and 6-11 are still rejected under 112, second paragraph, for reasons discussed above (see paragraph 3 above).

Claim Rejections - 35 USC § 103

10. Applicant's arguments with respect to claims 2-4, 6-11, and 33-34, filed on January 26, 2011, have been considered but are moot in the view of the new ground(s) of rejection. The new grounds of rejection are necessitated by the Applicants amendment and all arguments are directed toward the added feature of the metal sheet having an outer periphery bent in one of a U-shape and a V-shape.

Double Patenting

11. Applicant's arguments with regard to the provisional obviousness-type double patenting rejection, have been fully considered and the Examiner notes that Application 10/579,067 is still co-pending and under prosecution. The above provisional obviousness-type double patenting rejection will be maintained until these applications are no longer co-pending, a terminal disclaimer has been filed by the Applicant, and/or the claims have been amended to overcome the double-patenting rejection.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CLAIRE L. ROE whose telephone number is (571)272-9809. The examiner can normally be reached on Monday, Wednesday, Friday, 6:30AM - 4:00PM, EST and Tuesday, Thursday, 11:30AM - 6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Barbara Gilliam can be reached on 571-272-1330. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. L. R./
Examiner, Art Unit 1727

/Barbara L. Gilliam/
Supervisory Patent Examiner, Art Unit 1727